

REMARKS

By the above amendment, independent claims 1 and 16 have been amended to clarify features of the present invention, which features are not disclosed or taught in the cited art, as will become clear from the following discussion. Additionally, the dependent claims have been amended to be consistent with the language of the independent claims, and a new dependent claim 38 presented.

As to the rejection of claims 1, 13, 16, 30 and 31 under 35 USC 103(a) as being unpatentable over United States Patent No. 4,278,327 (to McMahon et al); the rejection of claims 3 - 6 and 18 - 21 under 35 USC 103(a) as being unpatentable over 4,278,327 (to McMahon) further in view of United States Patent 6,542,211 B1 to (Okada); the rejection of claims 9 - 12 and 24 - 27 under 35 USC 103(a) as being unpatentable over United States Patent No. 4,278,327 (to McMahon et al) in view of United States Patent 6,542,211 B1 (to Okada) and further in view of United States Patent 6,473,144 B1 (to Ichikawa et al); and the rejection of claims 34 - 37 under 35 USC 103(a) as being unpatentable over United States Patent No. 4,278,327 (to McMahon et al) in view of United States Patent 5,729,306 (to Miyake et al); such rejections are traversed insofar as they are applicable to the present claims, and reconsideration and withdrawal of the rejections are respectfully requested.

As to the requirements to support a rejection under 35 USC 103, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under '103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the

references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Furthermore, such requirements have been clarified in the decision of In re Lee, 61 USPQ 2d 1430 (Fed. Cir. 2002) wherein the court in reversing an obviousness rejection indicated that deficiencies of the cited references cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge".

The court pointed out:

The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual question of motivation is immaterial to patentability, and could not be resolved on subjected belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion. (emphasis added)

Before discussing the non-applicability of the cited art to the claimed invention, applicants note that independent claims 1 and 16 have been amended to recite the feature of a liquid crystal display element in a projection type liquid crystal display unit, as described at page 4, lines 6 - 8 of the specification under the heading

"Summary of the Invention". Furthermore, each of independent claims 1 and 16 have been amended to recite the feature that a light beam is incident upon and emergent from the liquid crystal layer through the transparent substrate (claim 1) or through at least one of the two substrates (claim 16), in directions which lie in a plane which is substantially perpendicular to a direction of orientation of the liquid crystal molecules at at least one of the two substrates, the light beam being modulated by the liquid crystal molecules. It is noted that claims 1 and 16 previously recited the feature that the light beam impinges upon a liquid crystal layer in a direction which is inclined by a predetermined angle to a direction normal to the transparent substrate or at least one of the two substrates, and a direction of polarization of the incident light beam upon the liquid crystal layer is substantially perpendicular or parallel to the direction of orientation of the liquid crystal molecules. Applicants note that the aforementioned features and more particularly, the modulation feature, are clearly described in the specification of this application, wherein, for example, the paragraph bridging pages 11 and 12 of the specification that application of voltage to the liquid crystal layer causes the birefringence to vary "so as to modulate the polarized state of the incident beam, resulting in a change of the volume of light passing through the polarizing plate on the emergent side". As such, it is apparent that the recited features of claims 1 and 16 and therewith the dependent claims are clearly supported by the application.

Turning to McMahon et al, applicants submit that this patent is not directed to a "projection type liquid crystal display unit", but rather, is directed to an improved electrooptical device having means for switching pluralities of polarized or unpolarized optical signals between input and output multimode single strand light guides. Thus, McMahon et al discloses a polarized beam splitter utilizing a liquid

crystal layer 4 interposed between opposed prisms 1 and 5, as illustrated in Fig. 3 of the drawings, for example. Polarization dependency of interface reflection between the prism 1 and the liquid crystal layer 4 is controlled through electrical control of a refractive index of the liquid crystal layer 4 at the interface at which a light beam is incident upon the liquid crystal layer from the prism 1, as described in connection with Fig. 1 of McMahon et al, for example. That is, as described at column 4, lines 3 - 8 of McMahon et al, and as shown in Fig. 1, the opposed flat, polished surfaces of the glass prism bodies 1, 5 at the interfaces with the liquid crystal film 4 are supplied with respective opposed thin optically-transparent, sputtered, electrically-conducting layers 2, 3. As described in column 4, lines 31 - 44 of McMahon et al, and as shown in Fig. 1, the incoming collimated light beam 6, incident at an acute angle  $\theta$  at electrode 2 is caused by the control signal V to be reflected as light beam 6a, or to traverse liquid crystal film 4 as light beam 6b. The critical angle for total internal reflection of the incident light beam 6 depends upon the applied field V and the optical polarization. Thus, in one instance, the incident beam is reflected as beam 6a, by the electrodes 2, without entering the liquid crystal film, and if not, the incident beam penetrates the liquid crystal film 4 and exiting via the prism body 5 as beam 6b.

Turning to claim 1, as shown in Figs. 1 and 2 of the drawings of this application, for example, and as now recited, the incident light beam 105 passes through the transparent substrate 103 and is incident on the liquid crystal layer 111, wherein it is modulated by the liquid crystal molecules in the liquid crystal layer and is reflected so as to emerge from the liquid crystal layer, and again passes through the transparent substrate 103. Irrespective of the contentions by the Examiner, applicants submit that McMahon et al does not disclose or teach the aforementioned

recited features of claim 1 and the dependent claims in the sense of 35 USC 103.

Applicants note that McMahon et al in Fig. 11 discloses a mirror 191 for reflecting a light beam transmitted through a transparent electrode which applies a voltage to the liquid crystal layer, which completely differs from a reflection pixel electrode provided for each pixel on the reflection substrate according to the present invention.

Applicants further note that the size of pixels is very small in comparison with the thickness of a prism in McMahon et al, and accordingly, should a reflection plate be provided outside of the prism, the resolution of the image is comparatively lowered and the reflection pixel electrodes would be ineffective. In accordance with the present invention, the projected light beam is modulated, by the liquid crystal molecules in the liquid crystal layer, substantially due to the retardation of the liquid crystal as a bulk form, and is reflected out of the liquid crystal layer, which is contrary to the disclosure and teaching of McMahon et al. As such, it is apparent that claim 1 and the dependent claims patentably distinguish over McMahon et al in the sense of 35 USC 103 and should be considered allowable thereover.

Additionally, irrespective of the Examiner's contentions concerning McMahon et al, applicants submit that the other features of claim 1 and the dependent claims, in relation to the above-described features, are also not disclosed or taught by McMahon et al in the sense of 35 USC 103, such that all claims should be considered to patentably distinguish over McMahon et al taken alone or in combination with other cited art.

With respect to claim 16, applicants note that hereagain, the operation is different from that disclosed and claimed in claim 16 such that McMahon et al also does not disclose or teach the aforementioned recited features. It is noted that a new dependent claim 38 has been presented which depends from claim 16 and

further recites the feature that the light beam which is incident upon and emergent from the liquid crystal layer passes through the one of the two substrates before being incident upon the liquid crystal layer and after being emergent from the liquid crystal layer and after being modulated by the liquid crystal molecules. Thus, it is apparent that the features of these claims are coextensive with the features of claim 1 and patentably distinguish over McMahon et al in the sense of 35 USC 103 such that the independent and dependent claims should be considered allowable with respect to McMahon et al.

As to the combination of McMahon et al with the other cited art, applicants submit that irrespective of the Examiner's contentions, the other cited art fail to overcome the deficiencies of McMahon et al as pointed out above, such that the proposed combination fails to provide the features of the independent and dependent claims in the sense of 35 USC 103. Irrespective of the Examiner's contentions, "obvious to try" is not the standard of 35 USC 103. See In re Fine, supra. Thus, applicants submit that all claims patentably distinguish over McMahon et al taken alone or in combination with any of the other cited art in the sense of 35 USC 103, and should be considered allowable thereover.

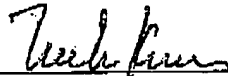
In view of the above amendments and remarks, applicants submit that all claims should now be in condition for allowance and issuance of an action of favorable nature is courteously solicited.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli,

Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 500.41256X00),  
and please credit any excess fees to such deposit account.

Respectfully submitted,

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